



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Hoe-Seong HA, et al.

Serial No. 09/765,543

Examiner: Estrade, Michelle

Filed: January 19, 2001

Group Art Unit: 2823

For: BORDERLESS CONTACT STRUCTUE AND METHOD OF FORMING
THE SAME

BOX NON FEE AMENDMENT

Assistant Commissioner for Patents,
Washington, D.C. 20231

Responsive to the Office Action dated June 19, 2002, enclosed is an amendment in the above-identified application.

The fee has been calculated as shown below.

CLAIMS AS AMENDED					
For:	Number After Amendment	Previous Number	Extra	Rate	Additional Fee
Total Claims	10	17	0	x \$18 =	\$0
Independent Claims	1	2	0	x \$84 =	\$0
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT					\$0

*greater of twenty (20) or number for which fee has been paid

**greater of three (3) or number for which fee has been paid

Respectfully submitted,

MARGER JOHNSON & McCOLLOM, P.C.



20575

PATENT TRADEMARK OFFICE

Alan T. McCollom
Reg. No. 28,881

MARGER JOHNSON & McCOLLOM, P.C.
1030 SW Morrison Street
Portland, OR 97205
(503) 222-3613

RECEIVED
SEP 26 2002
TECHNOLOGY CENTER 2800

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL IN AN ENVELOPE ADDRESSED TO:
☐ COMMISSIONER OF PATENTS AND TRADEMARKS, WASHINGTON D.C. 20231
☒ ASSISTANT COMMISSIONER FOR PATENTS, WASHINGTON D.C. 20231
☐ ASSISTANT COMMISSIONER FOR TRADEMARKS, 2900 CRYSTAL DRIVE, ARLINGTON VA 22202-3513
ON 9-18-02



PATENT APPLICATION
Do. No. 4591-160

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

6/A
Shen
9/29/02

In re application of: Hoe-Seong HA, et al.

Serial No. 09/765,543

Examiner: Estrade, Michelle

Filed: January 19, 2001

Group Art Unit: 2823

For: BORDERLESS CONTACT STRUCTUE AND METHOD OF FORMING
THE SAME

BOX NON FEE AMENDMENT
Assistant Commissioner for Patents
Washington, D.C. 20231

RESPONSE TO OFFICE ACTION

Responsive to the Office Action, dated June 19, 2002, please amend the application as follows.

IN THE CLAIMS

RECEIVED
SEP 26 2002
TECHNOLOGY CENTER 2800

- A*
1. A borderless contact structure comprising:
an semiconductor substrate having a top surface;
a device isolation region formed in a predetermined region of the semiconductor substrate, the device isolation region having a protrusion that is higher in level than the top surface of the semiconductor substrate;
an impurity diffusion region formed in an active region surrounded by the device isolation region;
an etch stop spacer formed overlying a sidewall of the protrusion;
an etch stop layer and an interlayer insulating layer sequentially formed over the resultant structure; and
a contact hole opening the interlayer insulating layer and the etch stop layer, the contact hole exposing at least a portion of the impurity diffusion region.
 2. The borderless contact structure according to claim 1, wherein the etch stop spacer is partially etched.